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Health, health care and the contribution of biotechnologies to health in developing countries

issues

- are non communicable diseases and the aging population the priority issues?
- are disease-oriented programmes/Global Funds the adequate response to the health crisis in developing countries?
- what is the role of biotechnologies in addressing priority health issues in developing countries?
- health research: are we doing the right things?

Outline

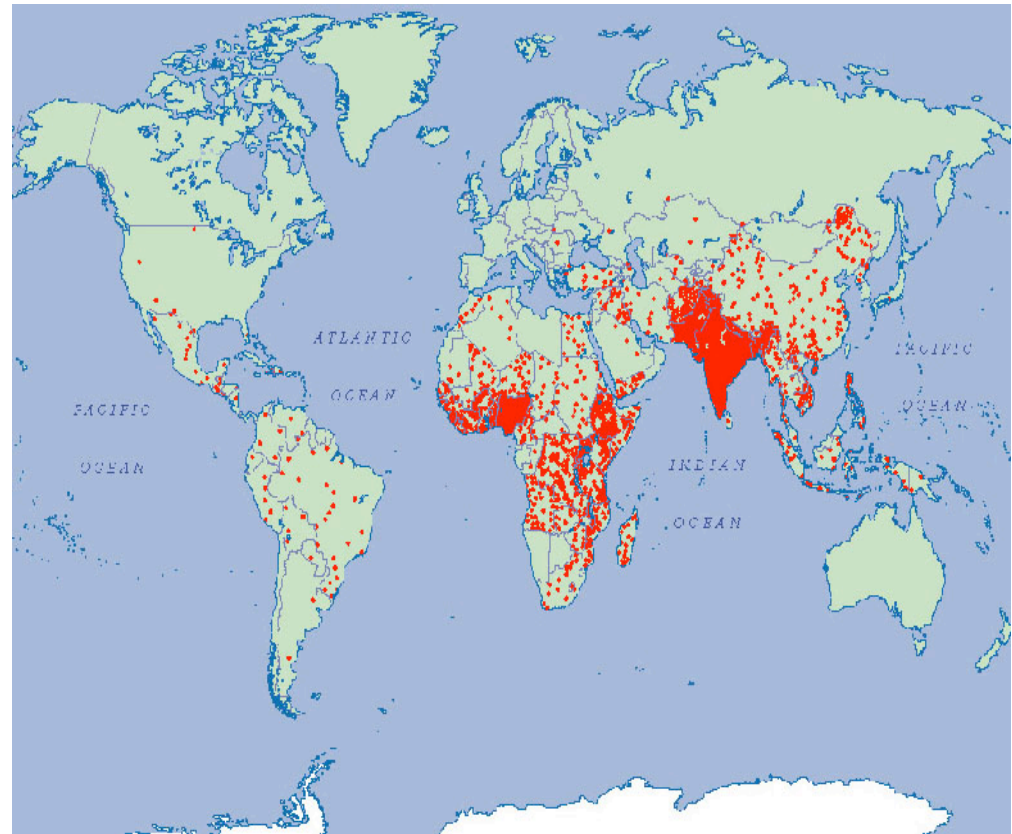
- Health status at global level
 - Situation of health care
- Contribution of biotechnologies to health

Health status at global level: highlights

- the health status of the majority of the population in many developing countries is daunting and represents an increasingly unsustainable burden for development and a threat to global security
- there is a **sense of progress**, but in many countries (almost all of them belonging to sub-Saharan Africa) there is stagnation or worsening of the main health indicators (WHO Health Report, 2006)

The unsustainable burden: child health

- 10.7 million children die every year
- Main causes of death:
 - prematurity and neonatal infections
 - diarrhoea
 - pneumonia
 - malaria
- malnutrition is an underlying cause of over 50% of deaths



1 dot = 5000 deaths

Over 150 million children suffer from long-term consequences of inadequate nutrition, illness, accidents and neglect

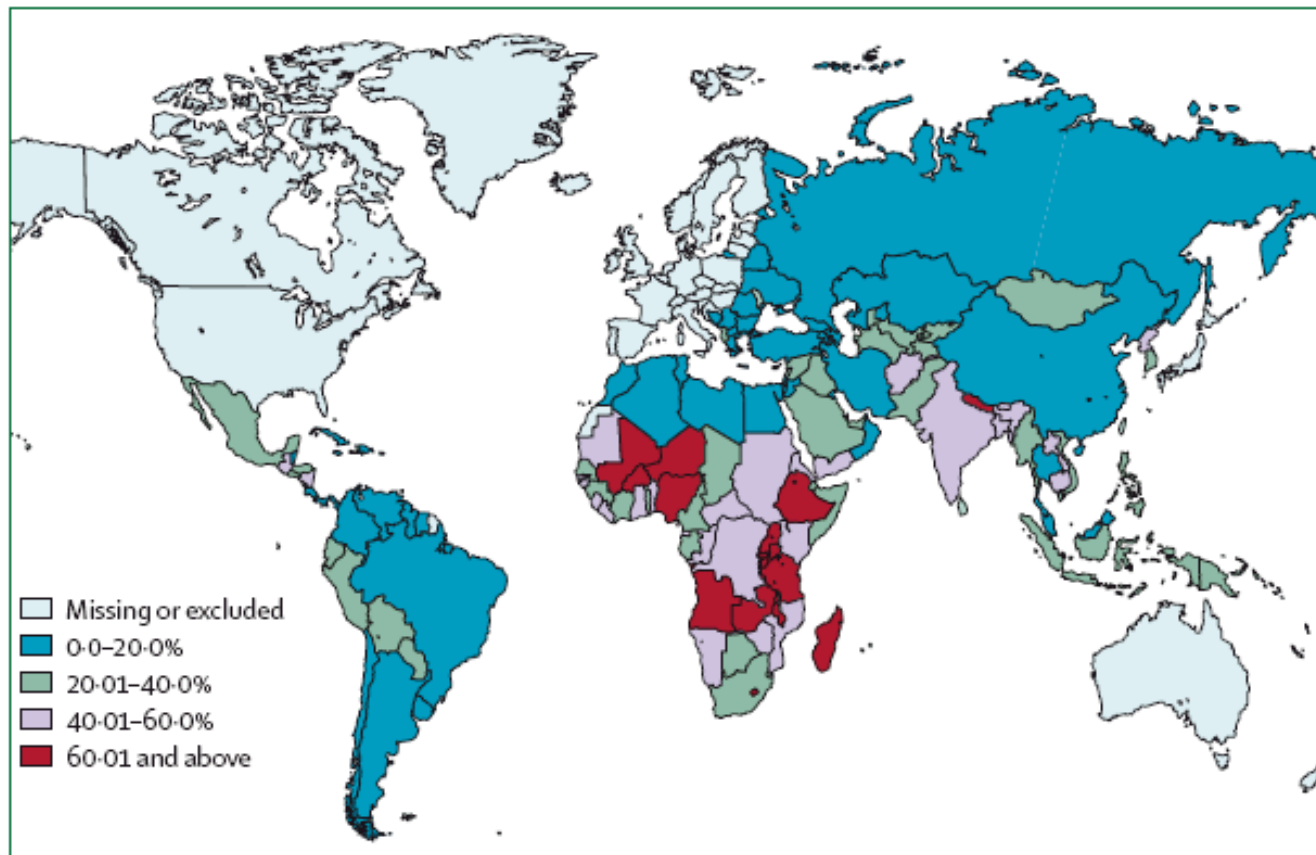


Figure 5: Percentage of disadvantaged children under 5 years by country in year 2004

Grantham-McGregor S et al. Lancet 2007

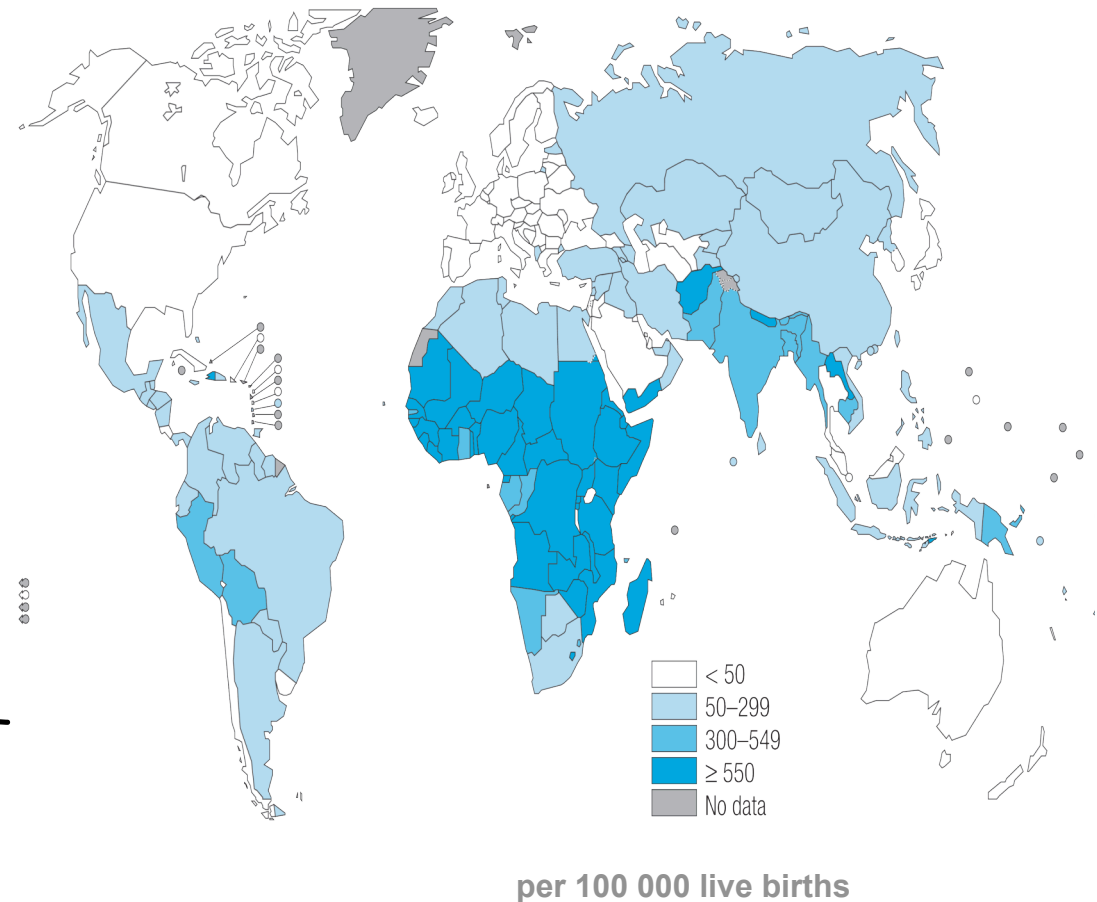
Early physical and cognitive deprivation



Leads to impaired cognitive development and poor school and working performance.

The unsustainable burden: maternal health

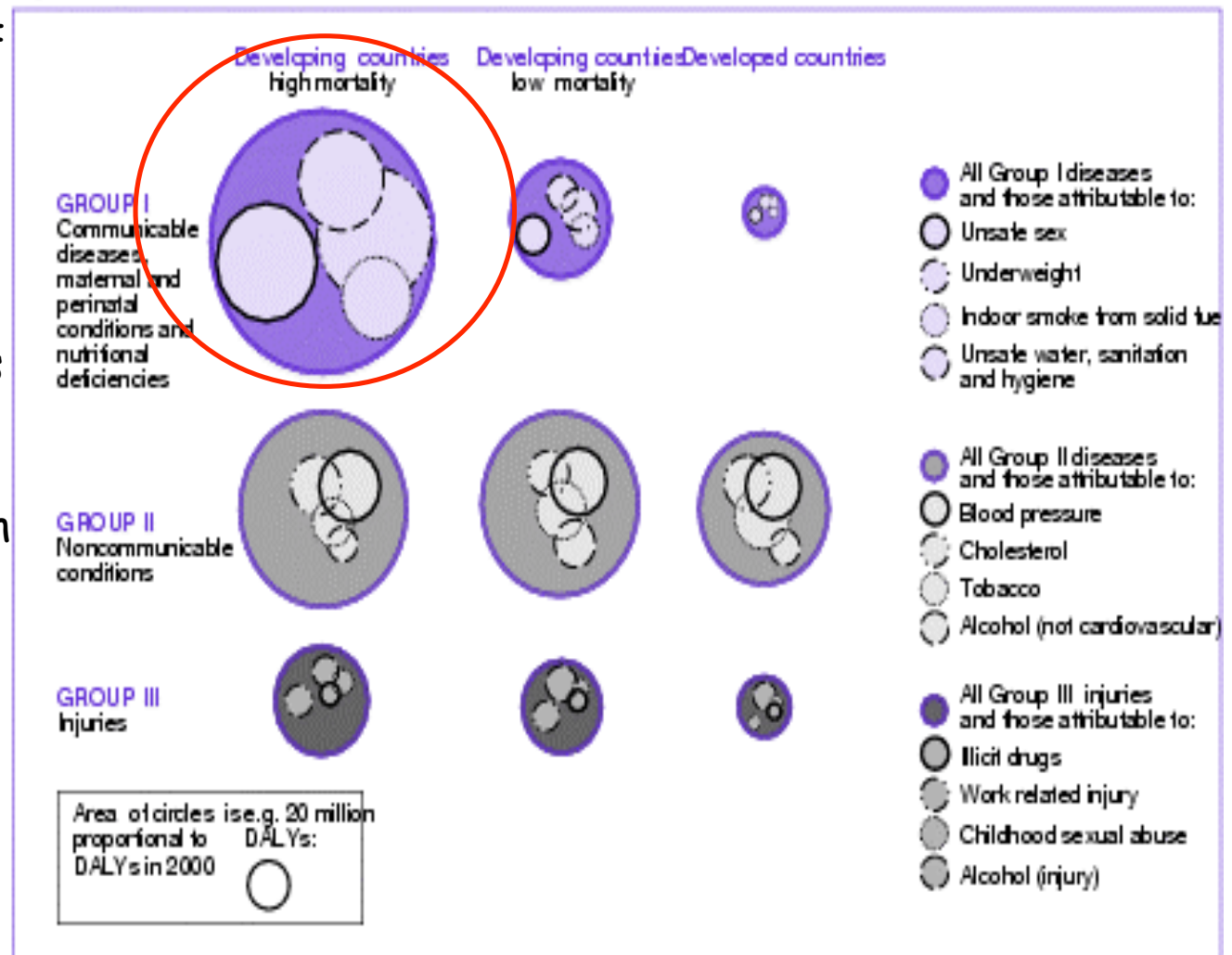
- **529 000** annual maternal deaths, including 68 000 deaths attributable to unsafe abortion
- over **300 million** women suffer from long-term or short-term illness brought about by pregnancy or childbirth
- There is **lack of reliable information** on the fate of mothers in many countries - and on that of their newborns



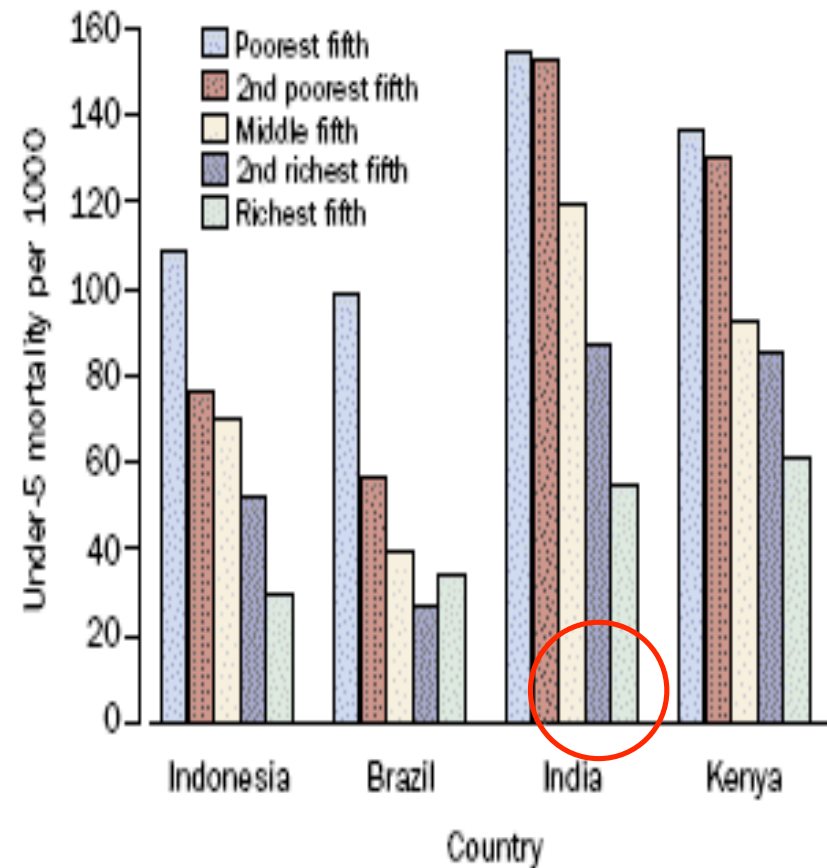
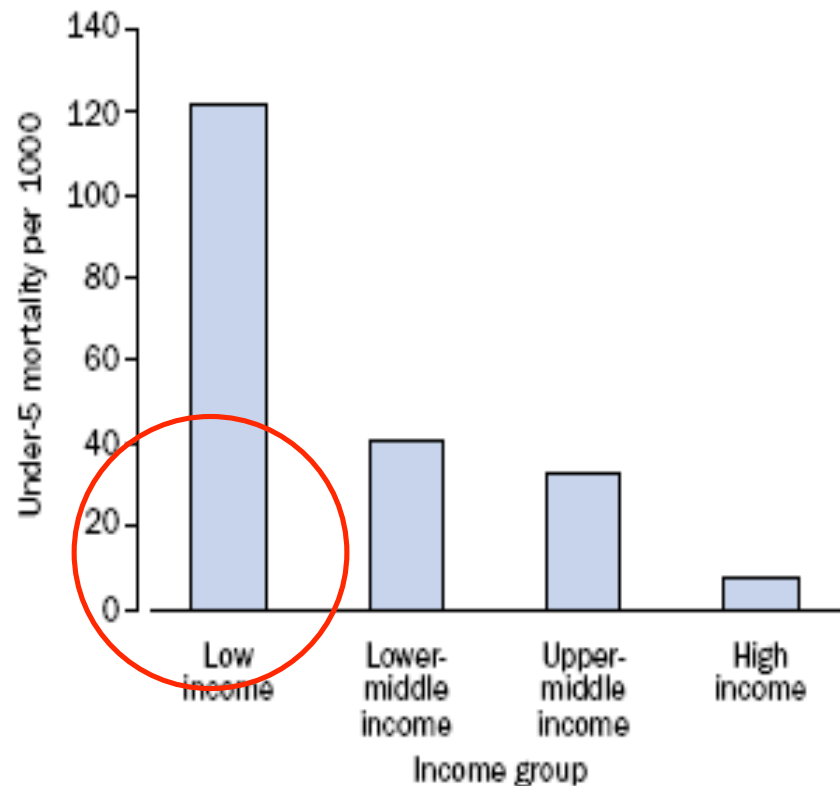
The “double burden” of disease

Figure 4.11 Disease and risk factor burden

- The diseases typical of poverty (group I diseases) are still major issues in high mortality countries
- Inadequate nutrition is still the most important risk factor, followed by poor reproductive health
- Injuries and violence (group III) are a growing cause of death and disability



The even less sustainable burden of health inequity across and within countries

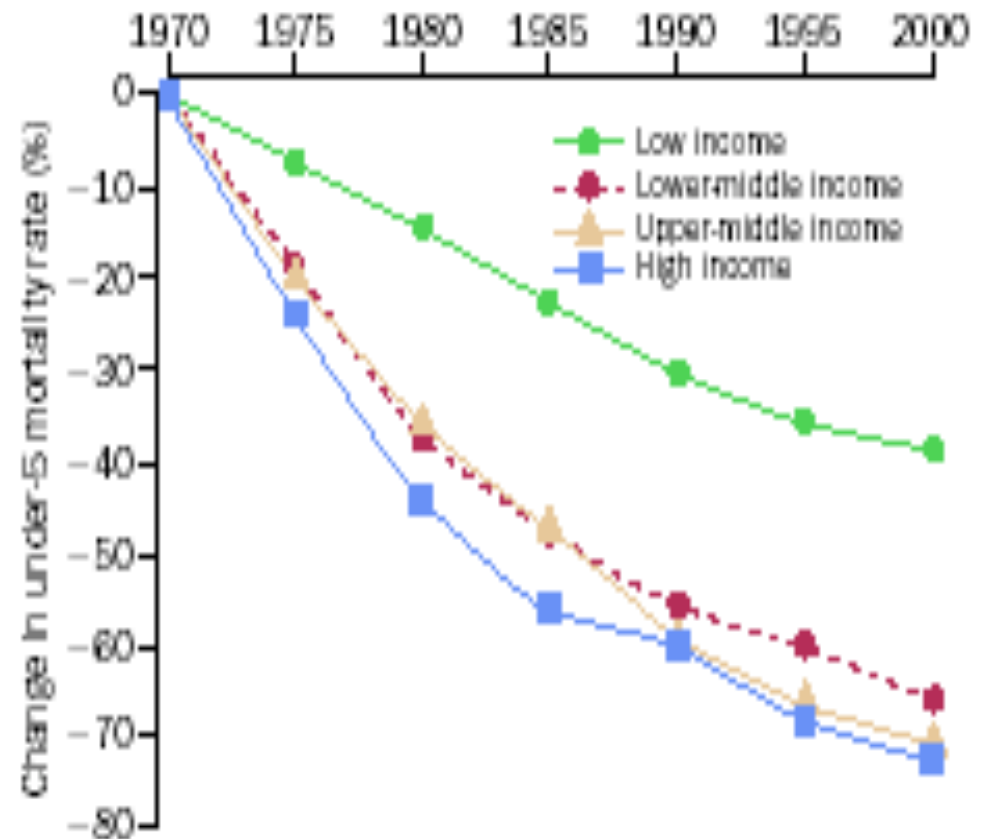


A widening gap

Why?

- very low per capita GDP and high proportion of population under poverty line
- *Bani guangnay, talkatarey hama (Niger) = ill health is the granddaughter of poverty*

Example: reduction in under 5 mortality in relation to income

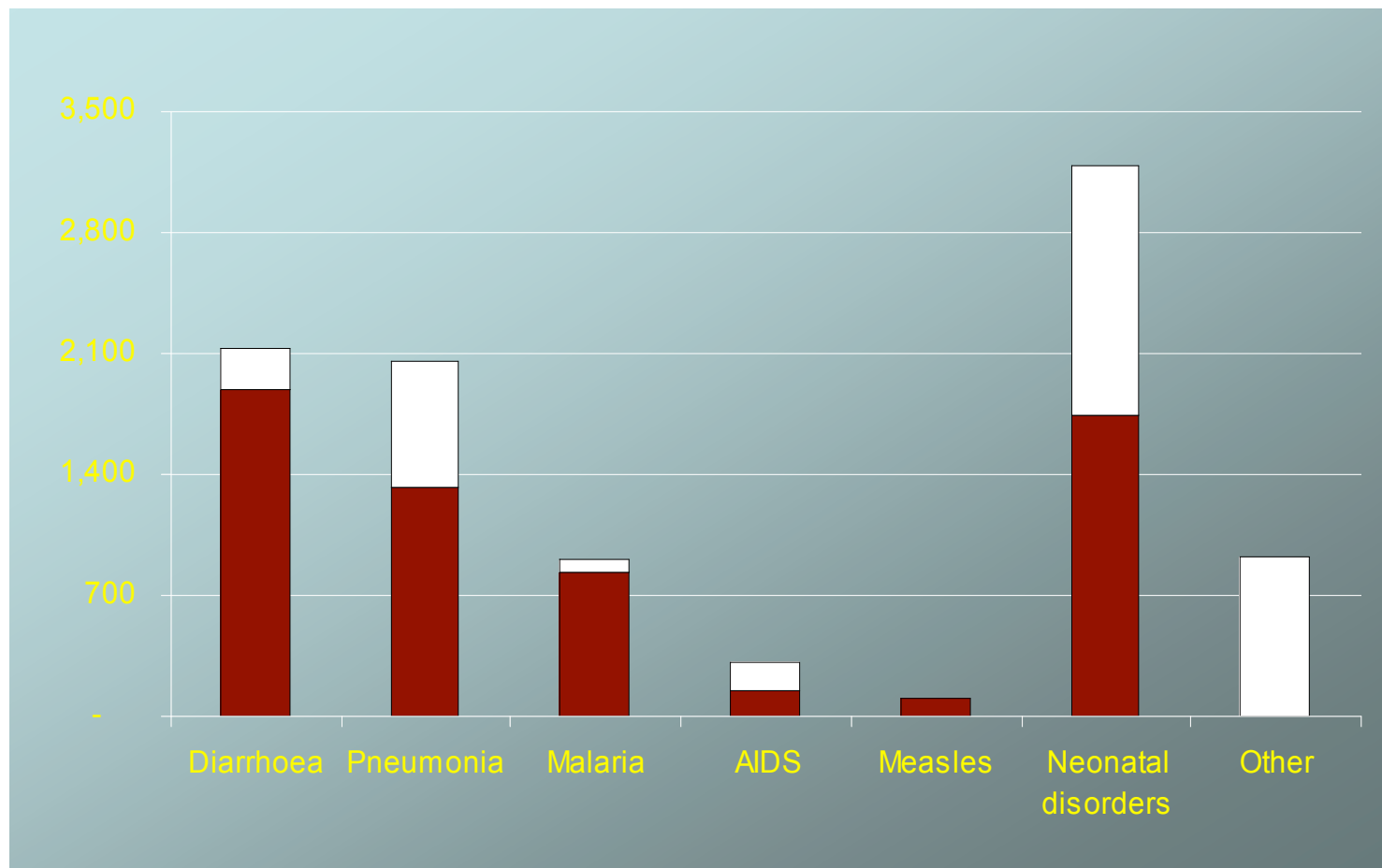


- Health status at global level
- **Situation of health care**

The health care paradoxes

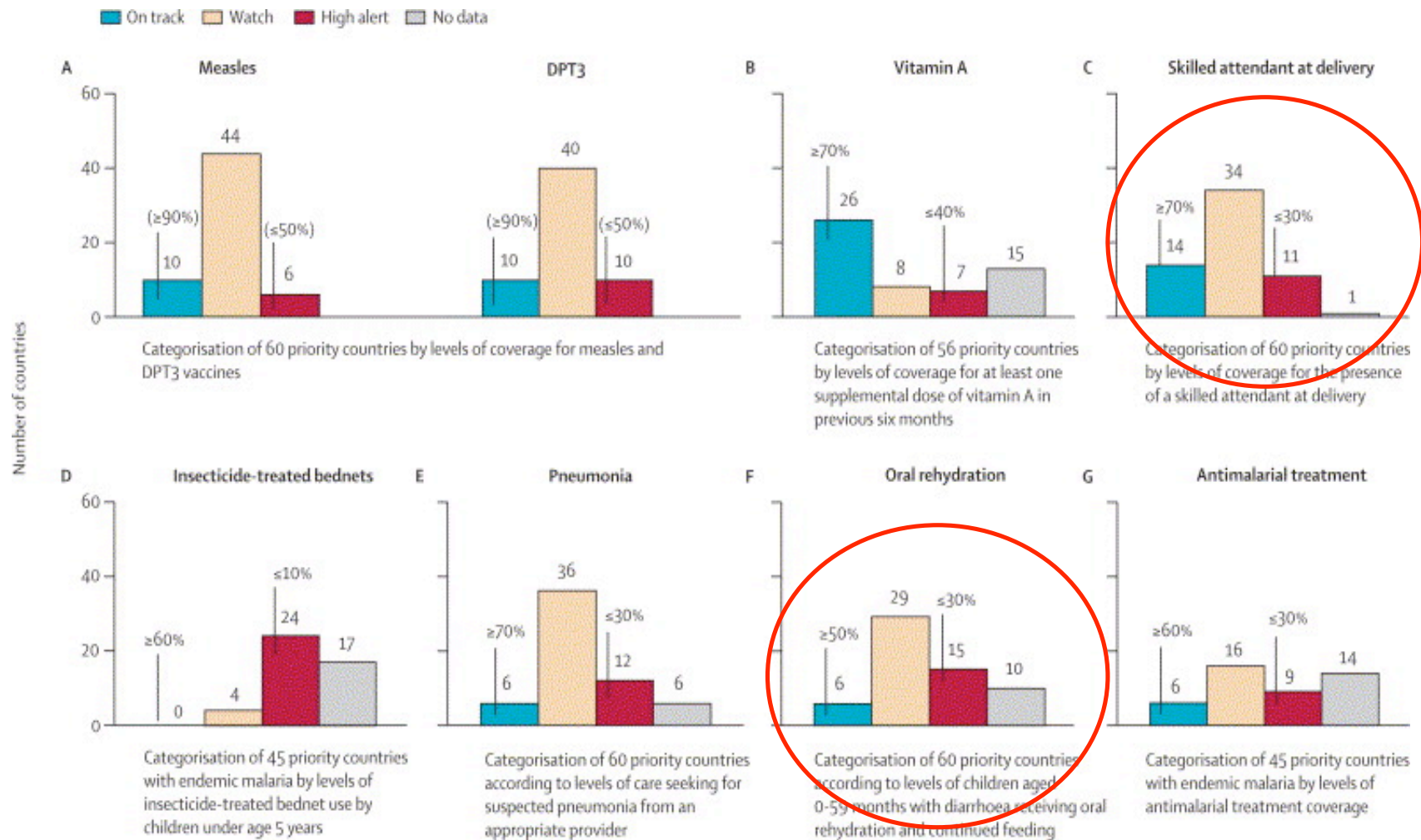
- Effective and low cost interventions to address group I diseases are well known, but health systems in most developing countries are too weak to deliver
- Those most in need - particularly women - are deprived of the basic capacities to take care of their own health as well as their children's health

Over 60% of deaths in under 5 children are preventable with simple interventions



Bryce et al. Lancet. 362, July 2003

But the coverage of essential interventions to achieve MDG 4 and 5 is low or very low



Bryce J. et al. Lancet 2006

Weak health services. Why?

- Very low public expenditure in health: average in is SAA 10 USD, while the cost of the minimum package of essential health services is between 25 and 35 USD
- Human resource crisis in health. 4.3 million workers are needed in developing countries. Developed countries contribute to drain health professionals
- Trend to privatization, in spite of the evidence that "public financing is an essential feature of most, if not all, public health successes around the world " (World Bank, Priorities in health, 2005)
- Low managerial capacity and weak accountability mechanisms
- Emphasis on vertical programmes and Funds rather than on support to health systems as a whole

Do we need new health programmes or more health workers?

Recent internal comments from the Global Fund for AIDS tuberculosis and malaria suggest an intention to focus more on the three diseases, and to leave the strengthening of health systems and support for the health workforce to others.

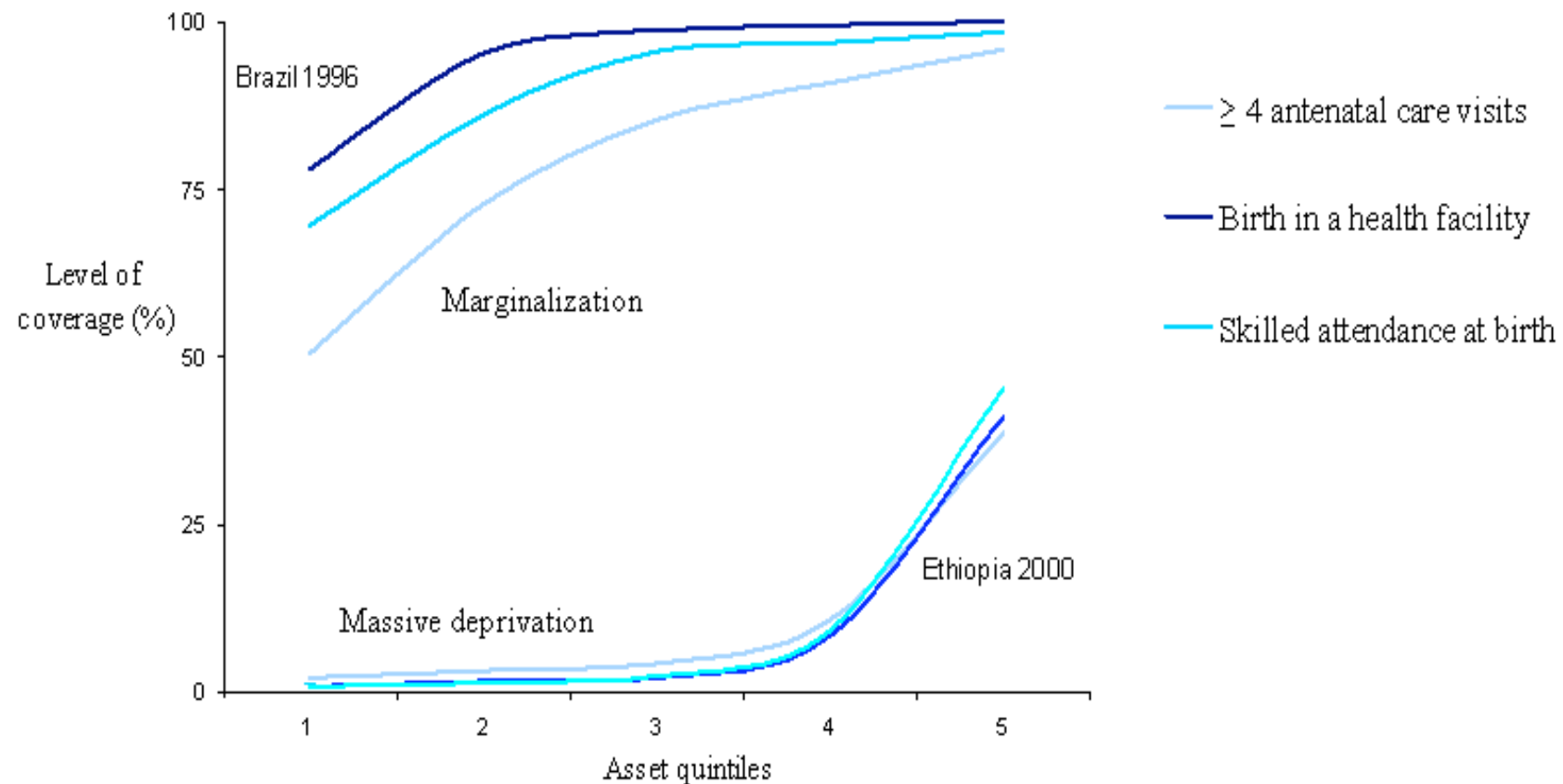
This can create a "Medicines without Doctors" situation in which the medicines to fight AIDS, tuberculosis, and malaria are available, but not the doctors or the nurses to prescribe those medicines adequately

(Ooms et al. , Public Library of Medicine, 2007).

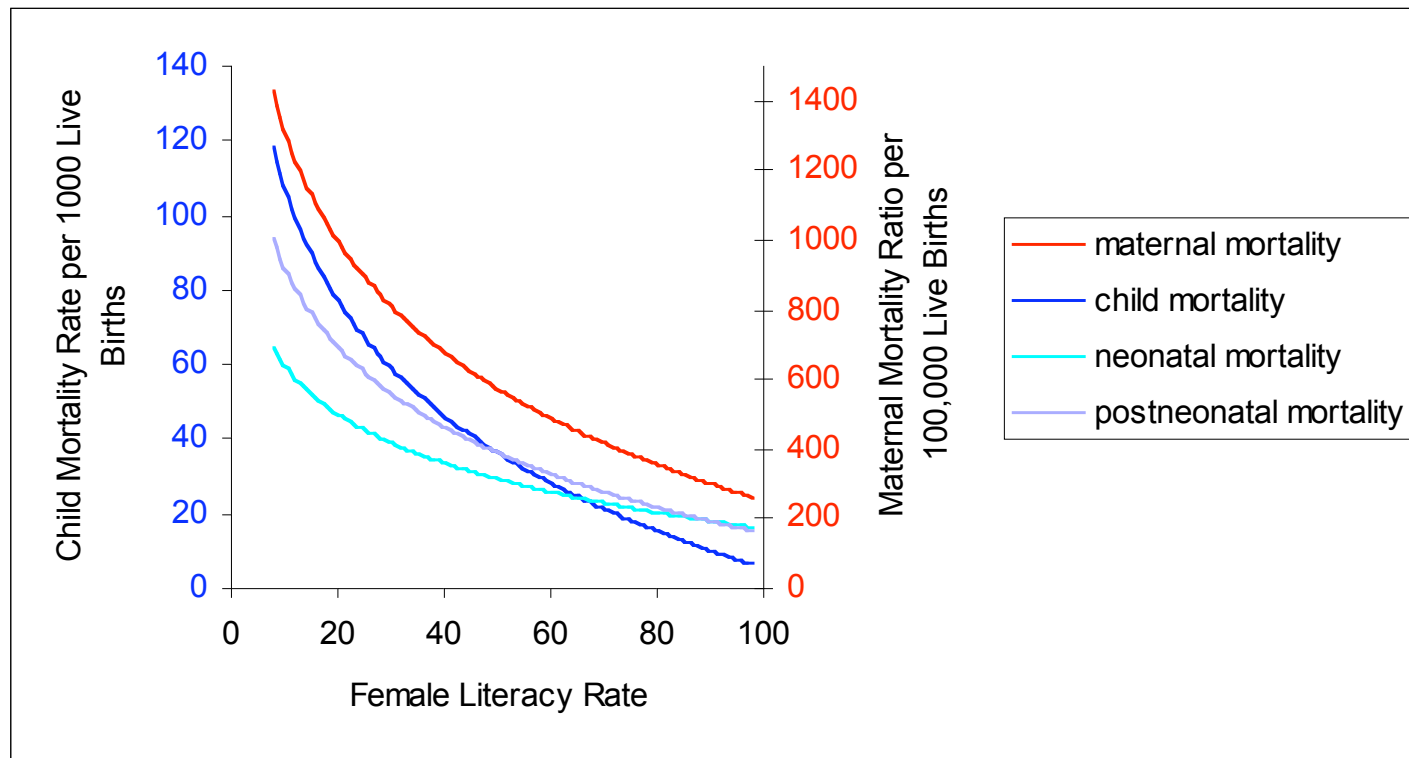
Integrated approaches to health care are necessary

- The model needs not to be reinvented, it is a universally accessible integrated health care system, with priority to primary health care and action at the community level (Alma Ata Conference, 1978)
- Care must be complemented by public health action to address the main risk factors (inadequate nutrition, lack of safe water, shelter, hazardous environments, etc.)
- ...and we should not forget the **demand side** of the health issue

In the most deprived population groups low demand for health (illiteracy, cultural obstacles) combines with low access to health (costs, discrimination) to produce exclusion



Effect of context: women's literacy



Sustainable development and health: which strategies ?

- to increase **demand** for health, through education, particularly women's education, and information
- to address main **risk factors**: undernutrition, poor reproductive health, lack of safe water, etc. through cross sectoral action
- to increase access to the **essential health interventions** by giving support to health systems (financing, staffing, management)

Learning from past experience

Between the early 1960s and the early 1990s :

child mortality fell

20 percent in Bangladesh but 65 percent in Sri Lanka,
10 percent in Haiti but nearly 80 percent in Costa Rica

60 percent in Kerala (now 18/1000) but 20 percent in
Madhya Pradesh (now 137.6/1000)

depending on factors such as income gains for the poor,
schooling, food security and water and sanitation,

exactly the same factors that allowed a sustained decrease
in child mortality in the UK earlier in the 20th century

- Health status at global level
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Issues in R&D for global health

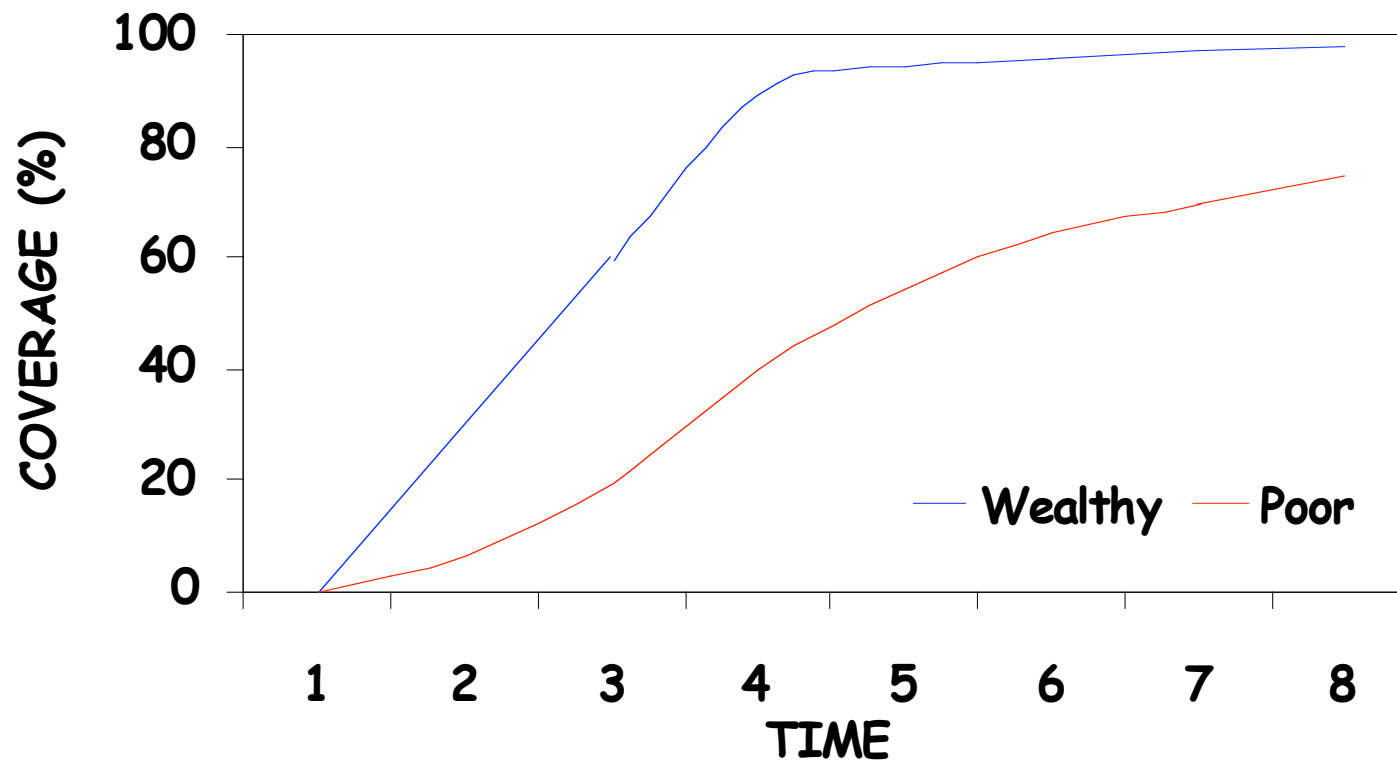
- a massive under-investment in health research that directly addresses the health problems of low- and middle-income countries : 90% of the total health resources invested in health research, i.e. 105.9 billions USD, addresses 10% of the total burden of disease (**the 10/90 gap**).
- a severe shortfall at the country level in the capacity to design, conduct and utilize health research (**the research capacity gap**)
- a general lack of capacity to manage health research on prioritizing health care interventions, on health care systems performance, particularly in the countries that have the highest burden of disease (**the health policy research gap**).

(Global Forum on Health Research, 2005)

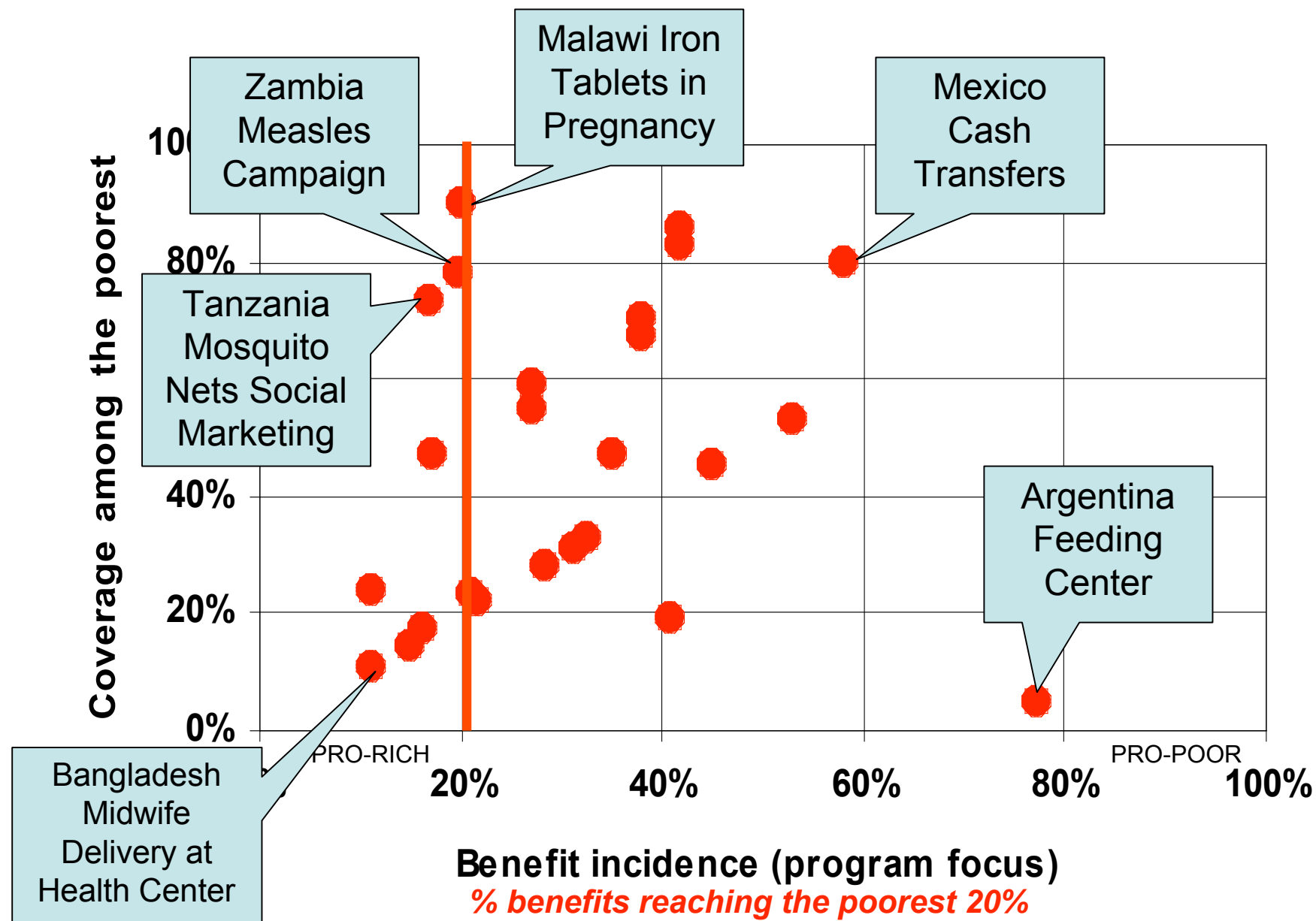
Reasons for persistence of burden of disease associated to main causes of child deaths and poor reproductive health
(from 0 to +++++ = very important).

| Main causes of : | Inadequate understading of disease mechanisms | Inadequate biotechnologies to control disease | Low capacity to use/deliver the existing technologies |
|---------------------------------|---|---|---|
| Child mortality | | | |
| Pneumonia | 0 | +++ | +++ |
| Diarrhea | 0 | ++ | ++++ |
| Vaccine preventable diseases | 0 | ++ | ++++ |
| Malaria | + | ++ | +++ |
| Malnutrition | +++ | 0 | +++ |
| Elminthiasis | 0 | + | +++++ |
| Poor reproductive health | | | |
| High Fertility | + | +++ | ++ |
| obstetric complications | 0 | + | +++++ |
| perinatal complications | 0 | + | +++++ |

Where do the benefits of new technologies go?



Victora et al., Lancet, 2003



The challenges for the scientific community

- a greater proportion of the global health research resources should be applied to the health problems of developing countries
- we need more research to address the lack of appropriate drugs and technologies to treat the burden of diseases in many developing countries
- ...but we also need more implementation research about what policies, systems and services work in different settings and population groups
- we need to strengthen local capacity to train and retain biomedical but also public health researchers

Health, health care and sustainable development: main messages

- The development of human capital stays at the very heart of sustainable development, the health and education of mothers and children should be given priority
- R&D on biotechnologies is not the only key issue to ensure health to populations; technological advances must be combined with social policies to address the determinants of health and disease including the environment and to support demand for health
- To achieve impact on population health, universal access to integrated health services, existence of an adequately funded and staffed health system and strategies to reach out for those most in need are necessary
- Current R&D efforts must address the 10/90 gap, strengthen local R&D capacity in biotech research as well as in health policy research

Thank you

